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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,466	03/30/2004	Sanjeev M. Naik	GP-303149	3142

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EXAMINER

NGUYEN, TU MINH

ART UNIT PAPER NUMBER

3748

DATE MAILED: 02/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/812,466

Applicant(s)

NAIK, SANJEEV M.

Examiner

Tu M. Nguyen

Art Unit

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-6,8-10,12 and 13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-6,8-10,12 and 13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. An Applicant's Request for Continued Examination (RCE) and an Applicant's Amendment filed on February 8, 2006 have been entered. Claims 2, 7, and 11 have been canceled; and claims 1, 3, 5, 6, 8-10, 12, and 13 have been amended. Overall, claims 1, 3-6, 8-10, 12, and 13 are pending in this application.

#### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office Action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3-6, 8-10, 12, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Sun et al. (U.S. Patent 6,253,546).

Re claims 1, 6, and 10, as shown in Figures 1-4, Sun et al. disclose a method, a system, and an article of manufacture (15) comprising a storage medium (84) having a computer program encoded therein for controlling a direct-injection gasoline engine (10) during regeneration of a lean NO<sub>x</sub> trap (53) disposed in an exhaust path of the engine, the regeneration characterized by a transition from stratified lean engine operation to homogeneous rich engine operation, comprising:

- determining a base desired torque (brake torque for the lean stratified mode) (lines 7-24 of column 4);

- estimating engine torque discontinuity between stratified lean engine operation and homogeneous rich engine operation based on stratified lean engine operation intake gas charges and homogeneous rich engine operation intake gas charges (there is a decrease or discontinuity in engine torque that would result from transitioning during the lean NO<sub>x</sub> trap regeneration due to a decrease in intake gas charge or intake manifold pressure as a throttle valve is moved in the closed direction; during the stratified lean operation, the intake manifold pressure is  $P$ , and during the trap regeneration, the intake manifold pressure is  $P_m(t)$  and a reduction of this intake manifold pressure is computed in expression (2); this reduction in intake manifold pressure causes a decrease or discontinuity in engine torque (also see lines 25-43 of column 4)); and

- applying a feed-forward compensating torque (fueling rate or spark timing adjustment as indicated in expression (3)) to the base desired torque during the lean NO<sub>x</sub> trap regeneration in an amount sufficient to compensate for the estimated engine torque discontinuity (see line 43 of column 4 to line 19 of column 5).

Re claims 3, 8, and 12, in the method, system, and article of manufacture of Sun et al., applying a feed-forward compensating torque to the engine comprises increasing fueling to the engine in an amount sufficient to effect said compensating torque (see Figure 4D, lines 27-30 of column 5, and lines 12-19 of column 5).

Re claim 4, in the method of Sun et al., determining a base desired torque is accomplished in accordance with one or more of a throttle pedal position, a cruise control setting and an idle speed control (lines 9-24 of column 4).

Re claims 5, 9, and 13, the method and article of manufacture of Sun et al. further comprising (see Figure 2 and lines 37-42 and 48-50 of column 3):

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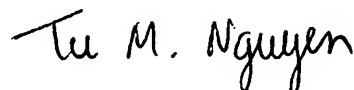
- determining the end of the lean NOx trap regeneration; and
- ending the application of the feed-forward compensating torque at the end of the lean NOx trap regeneration.

***Communication***

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Tu Nguyen whose telephone number is (571) 272-4862.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Thomas E. Denion, can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



TMN

February 17, 2006

Tu M. Nguyen

Primary Examiner

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